

Carbon-Free Hydrogen: The Energy Source of the Future

July 7, 2020











Forward-looking statements

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A truly transformative project

After four years of development,

Air Products, ACWA Power and NEOM

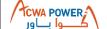
have made the decision to move forward with a

\$7 billion project to produce and deliver

carbon-free hydrogen to power buses and

trucks around the world









Why?





From dream to reality

- This project is the first world-scale integrated supply chain innovation to make the dream of carbon-free energy a reality
- Air Products is very proud to be part of this project
- This project is also a great example of how we deliver on our higher purpose as a company





Air Products' higher purpose

- To be a company where people from all walks of life join together, work together, and feel that they belong and that their contributions matter
- To innovate solutions for the challenges that face our customers and our world

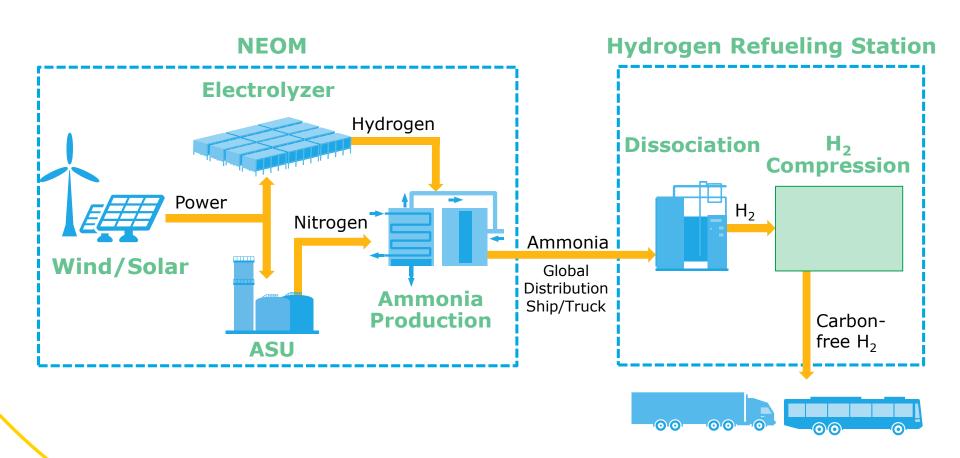
Carbon-free hydrogen will benefit the world by providing clean energy on a massive scale by eliminating CO₂ and all other emissions from the equivalent of over 700,000 cars





Carbon-free hydrogen

Produced and delivered with proven, world-class technology

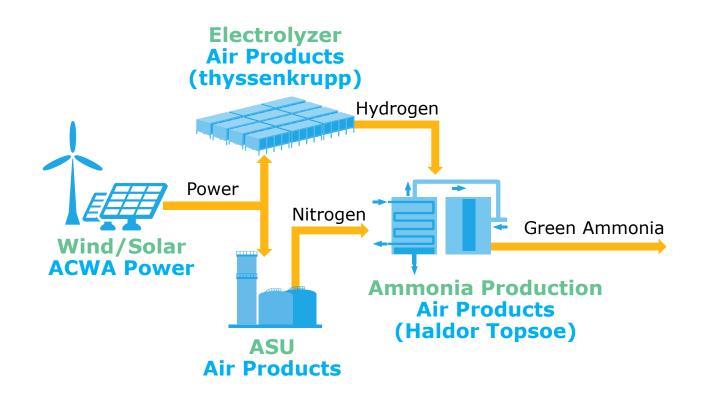






Carbon-free hydrogen

Produced with proven, world-class technology in NEOM, Saudi Arabia









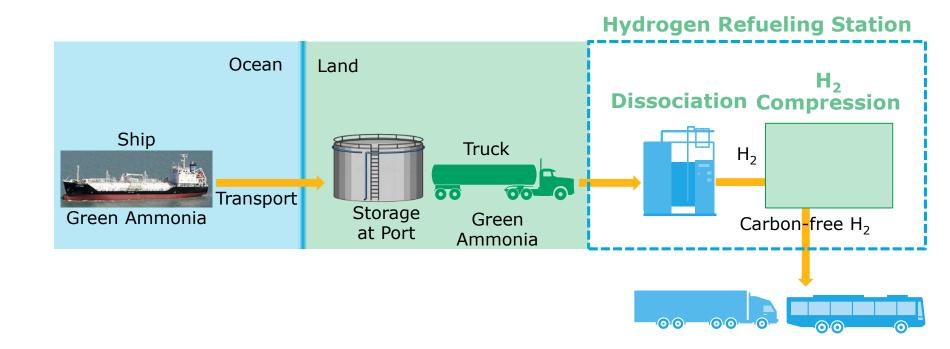


NEOM, Kingdom of Saudi Arabia Building a new future





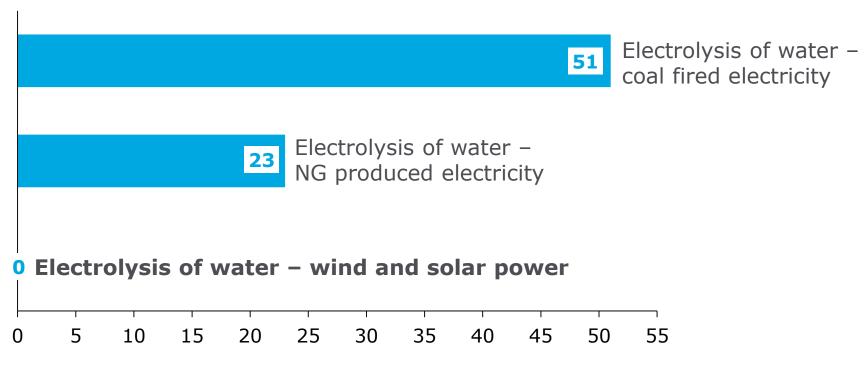
Air Products carbon-free hydrogen Supplying global customers







Hydrogen production | CO₂ intensity



kg of CO₂ per kg of hydrogen produced



Carbon-free hydrogen project

Hydrogen production

- Capital: ∼\$5 billion
- Ownership:
 - 1/3 Air Products
 - 1/3 NEOM
 - 1/3 ACWA Power
- Location: NEOM, KSA
- Financial return: Consistent with previous capex commitments

Distribution to end customers

- Capital: ~\$2 billion
- Ownership:
 - 100% Air Products
- Location: Global market
- Financial return: Consistent with previous capex commitments

~\$3.7 billion Air Products total investment

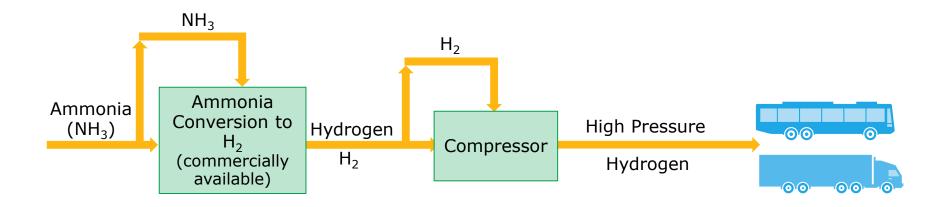








Hydrogen refueling station (HRS)





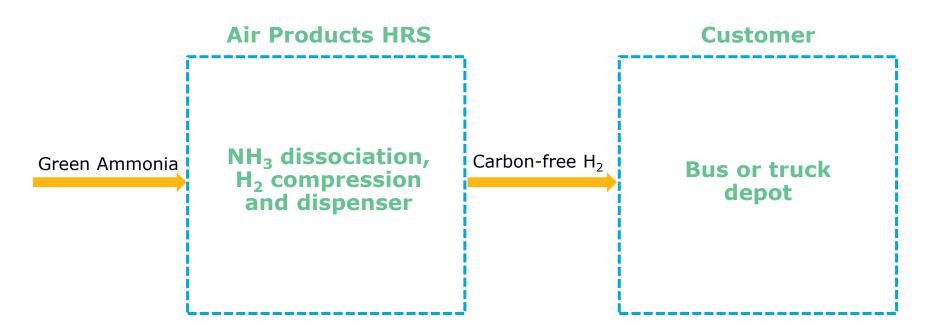


Our focus is fueling hydrogen fuel cell buses and trucks





Sale of carbon-free hydrogen



Long-term supply agreement





We will have

carbon-free hydrogen

to power buses and trucks

around the world

by 2025





Carbon-free hydrogen:

A perfect fit with APD's long-term strategy

- Aligned to our higher purpose
- Creates significant shareholder value
 - Significant value in carbon-free hydrogen market
 - Share of JV profits
 - Equipment sale to JV
- Long-term positioning
 - Global leadership for massive Hydrogen for Transportation market
 - Significant potential future opportunities
- Sustainability
 - Project avoids all emissions from the equivalent of >700,000 cars, including >3 million tons per year of CO₂





Thank you tell me more





Hydrogen fast facts

- Hydrogen:
 - -1 kg = 2.2 lb = 423 standard cubic feet (SCF)
 - -1 metric ton = 1000 kg
 - $-38 \text{ SCF} = 1 \text{ normal meter}^3 \text{ (Nm3)}$
- 1 ton ammonia: contains 177 kg hydrogen
- Hydrogen buses and trucks:
 - Range of 25 40 kg H₂ / day, depending on usage and model





Air Products: world leader in hydrogen

The world's largest hydrogen producer with



proven reliability



> 32 kilometers of pipeline

The world's longest H₂ pipeline system and world-class liquid hydrogen supplier

15+
safe fueling



Unique product offering for H_2 fueling



1,500,000 fueling per year

10 million total fueling



~50 patents for hydrogen fueling

- Production: SMR, gasification, off-gas, electrolyzer, liquefier
- Distribution: pipeline, liquid trucks, gaseous trucks

